REMARKS

Claims 1-49 are pending. Allowance of all pending claims is respectfully requested.

Rejections under 35 USC 103

Claims 16-19, 26-44, and 46-49 stand rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 5,250,095 to Sigel et al. (Hereinafter Sigel) for reasons stated on pages 2-4 of the Office Action. Applicants respectfully traverse the rejection.

The 103 rejection is based on the Examiner's interpretation that Claims 16 and 17 are product-by-process claims and that the claimed product is obvious over the product disclosed in Sigel. While it is true that the patentability of product-by-process claims is based on the product itself and does not depend on the methods of production, Applicants respectfully submit that a product-by-process claim is unpatentable only if the product made by the claimed process is the same as or obvious from a prior art product made by a different process. In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985).

In the instant case, Claims 16 and 17 are directed to a porous sol-gel fiber. Sigel teaches a porous borosilicate glass fiber. Although the sol-gel fiber of the present invention is also referred to as sol-gel glass fiber, it is fundamentally different from the porous glass fiber made by the Sigel process.

The product made by the Sigel process is a porous borosilicate glass fiber. Sigel provides that the porous glass fiber is made by inducing a phase-separation in borosilicate glass with heat and leaching out the boron-rich phase with hydrochloric acid (col. 4, lines 13-54). Sigel further provides that glass composition suitable for such process should contain silica, boron oxide, and an alkali oxide or combination of alkali oxides. Because the fiber design relies on the process of phase separation, the proportion of each component of the glass must be such that the final

composition lies within the immiscibility region dictated by the appropriate phase diagram (col. 5, lines 43-50). Accordingly, one skilled in the art would recognize that the final product of the Sigel process, the porous borosilicate glass fiber, must contain boron oxide and alkali oxides.

The porous sol-gel glass fiber of the present invention, however, is an amorphous silicate glass comprising mostly a network of colloid-size particles of SiO_2. The porous sol-gel glass fiber of the present invention does not contain boron oxide and alkali oxides, nor could it be made by the Sigel process because boron oxide and alkali oxides are required in the Sigel process. Therefore, the products claimed in Claims 16 and 17 are different in composition from the product made by the Sigel process. It is also well known in the art that glasses produced by the sol-gel process have higher optical quality and higher purity than glasses made by conventional melting techniques (see e.g., U.S. Patent No. 6,158,245 to Savant, col. 6, lines 39-57).

Moreover, Sigel does not mention anything about the sol-gel process or sol-gel glasses. Therefore, it does not teach or suggest the sol-gel process or any product made by the process. Specifically, Sigel does not teach or suggest a porous glass fiber that does not contain boron oxide and alkali oxides. Accordingly, Applicants respectfully submit that the product of the Sigel process does not render Claims 16 and 17 obvious. Applicants further submit that dependent Claims 18-19, 26-44, and 46-49 are patentable because they depend from Claim 17 and define additional patentable subject matter. Withdrawal of the 35 USC 103 rejection to Claims 16-19, 26-44 and 46-49 is respectfully requested.

Allowable subject matter

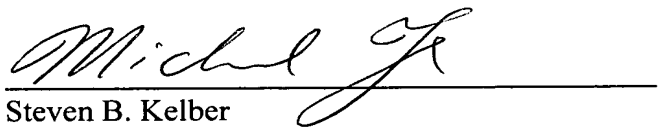
Applicants would like to take this opportunity to thank the Examiner for allowing Claims 1-15 and 20-25.

Conclusion

In view of the foregoing remarks, favorable reconsideration of all pending claims is requested. Applicants respectfully submit that this application is in condition for allowance and requests that a notice of allowance be issued. Should the Examiner believe that anything further is required to expedite the prosecution of this application or further clarify the issues, the Examiner is requested to contact Applicants' representative at the telephone number listed below.

Respectfully submitted,

DLA PIPER RUDNICK GRAY CARY U.S. LLP



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In re Thorpe, et al. (CA FC) 227 USPQ 964 In re Thorpe, et al.

U.S. Court of Appeals Federal Circuit
227 USPQ 964

Decided November 21, 1985
No. 85-1913

Headnotes

PATENTS

1. Patentability/Validity -- Subject matter (§ 115.05)

Determination of patentability in "product-by-process" claims is based on product itself, even though such claims are limited and defined by process, and thus product in such claim is unpatentable if it is same as, or obvious from, product of prior art, even if prior product was made by different process.

2. Patentability/Validity -- Subject matter (§ 115.05)

Patent and Trademark Office Board of Appeals did not err by affirming examiner's rejection of "product-by-process" claims, absent proof by applicant that prior art products do not necessarily or inherently possess characteristics of his claimed product.

Particular patents -- Color Developers

Thorpe, et al., application, Improved Process for Metal-Modified Phenolic Novalac

Resin, rejection of claims 44-47 affirmed.

Case History and Disposition:

Appeal from Patent and Trademark Office Board of Appeals.

Application for patent of Donald H. Thorpe, et al., Serial No. 132,739, filed March 24, 1980. From decision affirming examiner's decision rejecting claims 44-47, applicants appeal. Affirmed.

Attorneys:

James F. Tao, Niagara Falls, N.Y. (William G. Gosz, Niagara Falls, N.Y., on the brief) for appellants.

Richard E. Schafer, Associate Solicitor (Joseph F. Nakamura, Solicitor, and Fred E. McKelvey, Deputy Solicitor, on the brief) for Patent Office.

Judge:

Before Davis and Newman, Circuit Judges, and Nichols, Senior Circuit Judge.

Opinion Text

Opinion By:

Newman, Circuit Judge.

We affirm the judgment of the United States Patent and Trademark Office Board of Appeals (the Board), which upheld the examiner's rejection of product-by-process claims 44, 45, 46, and 47 of U. S. Patent Application Serial No. 132,739 of Donald H. Thorpe *et al.* (Thorpe), filed March 24, 1980 for "Improved Process for Metal-Modified Phenolic Novolac Resin".

Background

The invention relates generally to color developers in carbonless copy paper systems. Such systems include a top sheet having microcapsules of a color-former coated on its back, and a copy sheet coated with a color-developer on its face. The color-former

microcapsules rupture upon pressure of a writing instrument and release chromogenic material that reacts with the color-developer on the copy sheet.

It is known to use, as color developer, a novolac (sometimes spelled "novolak") phenol-aldehyde resin having an incorporated metal salt. Such materials had been produced prior to Thorpe's improvement, by heating the novolac resin with an organic metal salt such as zinc dibenzoate or zinc dipropionate in the presence of a weak base such as ammonia. In face of the prior art's teachings against the use of metal oxides with novolac resins, Thorpe discovered a process for making a metal-modified novolac color developer by reacting a novolac resin, a metal oxide or its functional equivalent, an ammonia base, and a mono-carboxylic acid. Claim 1 is the broadest claim:

1. In the process of preparing a metal-modified novolac phenolic resin wherein the metal is selected from the group consisting of copper, aluminum, zinc, chromium, indium, tin, cadmium, cobalt and nickel, by reaction of a compound of said metal, an ammonia base and a novolac phenolic resin at an elevated temperature sufficient to maintain the reaction mixture in molten condition, the improvement comprising charging as reactants an oxide of the metal or the functional equivalent of said oxide, a mono-carboxylic acid selected from the group consisting of C $_{1-12}$alkanoic acids and aromatic carboxylic acids of the benzene or naphthalene series, an ammonia base and the novolac phenolic resin.

The claimed process differs from the prior art in Thorpe's use of the metal oxide and carboxylic acid as discrete reactants, replacing the more expensive preformed metal carboxylate. These process claims were allowed. The claims which are the subject of this appeal are four product-by-process claims, of which claim 44 is typical:

44. The product of the process of Claim 1.

The Board affirmed the examiner's rejection of the product-by-process claims under 35 U.S.C. § § 102(b), 102(e), and 103, in view *inter alia* of the reference to Mueller showing zinc dibenzoate in the same novolac resin compositions, and the Kikuga or Stolfo references which show novolac-ammonia base compositions modified with zinc carboxylates; which the Board described as the same product prepared by a different process.

The Board observed that the case law requires that the product itself meet all the requirements for patentability. The PTO's position is that Thorpe's assertion of patentability of his product under § § 102 and 103 is unsupported by evidence, and that the burden of coming forward with evidence was on Thorpe in view of the "admission" in his specification that his product has properties "about equal" to those of the prior art, and a page of Thorpe's notebook (filed under Rule 131) wherein he identified the process as forming "zinc benzoate in situ," the reagent shown in the prior art.

Thorpe contends that it was unexpected that the product, even if it were the same as that of the prior art, resulted from the process of his invention. Thorpe also argues that the PTO bears the burden of demonstrating that the products are the same, and that the PTO can not meet this burden by relying on Thorpe's own disclosures. Thorpe also argues that if the process is patentable, as has already been held, then product-by-process claims should also, without more, be patentable.

Analysis

[1] Product-by-process claims are not specifically discussed in the patent statute. The

practice and governing law have developed in response to the need to enable an applicant to claim an otherwise patentable product that resists definition by other than the process by which it is made. For this reason, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. *In re Brown,* 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972); *In re Pilkington,* 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); *Buono v. Yankee Maid Dress Corp.,* 77 F.2d 274, 279, 26 USPQ 57, 61 (2d Cir. 1935).

The patentability of a product does not depend on its method of production. *In re Pilkington,* 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969). If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Marosi,* 710 F.2d 799, 803, 218 USPQ 289, 292-93 (Fed. Cir. 1983); *Johnson & Johnson v. W.L. Gore,* 436 F.Supp. 704, 726, 195 USPQ 487, 506 (D. Del. 1977); *see also In re Fessman,* 489 F.2d 742, 180 USPQ 324 (CCPA 1974).

Thorpe does not assert that the product of his process is different from the product of the prior art. Rather, Thorpe argues that the PTO has the burden of showing that the product of his process is the same as the product of the prior art. The burden of presenting a *prima facie* case of unpatentability resides with the PTO, as discussed in *In re Piasecki,* 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984).

The examiner asserted that Thorpe's product made using zinc oxide and benzoic acid is *prima facie* the same as the prior art product made using zinc dibenzoate. The PTO referred to Thorpe's documents of record as showing that Thorpe also believed that zinc dibenzoate is formed, and took Thorpe's statement that his resin's properties are "about equal" to the known resin as an acknowledgment of similarity. Thorpe invokes the principle that an applicant's own disclosures cannot be used to support a rejection of the claims, "absent some admission that matter disclosed in the specification is in the prior art." *In re Wertheim,* 541 F.2d 257, 269, 191 USPQ 90, 102 (CCPA 1976), and cases cited therein. However, Thorpe's purported "admissions" are of a different sort than those dealt with in *Wertheim.*

Thorpe's description of the chemistry of his process as producing the same product as the process of the prior art is a statement of chemical fact, part of the description of Thorpe's invention. It was not Thorpe's disclosure of "zinc benzoate in situ" that was used by the PTO as prior art; it was the Mueller reference that taught the use of zinc benzoate. The examiner compared the product of the prior art, and the product of Thorpe's process as described by Thorpe, in accord with standard examination practice, noting the similarity of reactants, reaction conditions, and properties.

[2] Thorpe argues that even if the performance of a compound is comparable to that of the prior art, this fact does not necessarily imply that the structures are identical. We agree. We also agree that on the entirety of the record the PTO had correctly adduced a *prima facie* case, and that the burden had shifted to Thorpe, "to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product." *In re Fitzgerald,* 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980); *In re Best,* 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977). This Thorpe did not do. We conclude that the Board correctly affirmed the examiner's rejection of claims 44

through 47.

Policy Issues

Thorpe acknowledges the controlling precedent of this court and the Court of Customs and Patent Appeals, as discussed *supra,* and invites us to overrule this precedent. Thorpe argues that as a matter of public policy a patent applicant should be entitled to product-by-process claims whether or not the same product was previously produced by some other process. He argues that no harm is done thereby, no patent rights are extended, and that the case law is unduly restrictive.

Thorpe reminds us of the principle that an inventor is entitled to claim an invention in the inventor's choice of terms, and argues that this entitles him to claim the product as produced by his admittedly patentable process. Thorpe states that a product-by-process claim is only infringed when the process of the claim is used, and that the grant of product-by-process claims merely enables a fairer scope of enforcement to an inventor's statutory right to exclude.

Thorpe has directed our attention to pending legislation, which he states would change the law we are here applying. It is the province of Congress to make changes in law based on public policy. We do not agree with Thorpe that we should act in anticipation of possible action by the legislature. To the contrary. It is inappropriate for a court to abandon longstanding precedent, were it in our power and inclination to do so, on the eve of congressional consideration. *Roche Products v. Bolar Pharmaceutical Co.,* 733 F.2d 858, 865, 221 USPQ 937,

942 (Fed. Cir. 1984), *cert. dènied* 105 S. Ct. 183, 225 USPQ 792 (1984).

AFFIRMED.

- End of Case -